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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,679	11/22/2000	Rajeev Shorey	JP920000271US1	5343

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EXAMINER

SCHEIBEL, ROBERT C

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/718,679	Applicant(s) <u>CA</u> SHOREY ET AL.	
	Examiner Robert C. Scheibel	Art Unit 2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 10/8/04
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u>20050215</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 8-9 and the first paragraph of page 11, filed 10/8/2004, with respect to the first, second, fourth, and fifth bullets of the previous objections to the specification have been fully considered and are persuasive. The first, second, fourth, and fifth bullets of previous objections to the specification have been withdrawn. Note that the objection to the specification for the description of Figure 2 is still maintained (see below). Some additional minor informalities have also been discovered upon further review of the specification and are cited in the objections to the specification below.

2. Applicant's arguments, see page 10, the first replacement drawings sheet, and the first paragraph of page 11, filed 10/8/2004, with respect to the third bullet of the previous objections to the specification (for the description of Figure 2) have been fully considered but they are not persuasive. Applicant has modified Figure 2 to overcome the previous objection which essentially stated that the description of Figure 2 in the specification did not match the flow shown in Figure 2. Examiner has reviewed the changes, but the description still does not match the figure. For example, in lines 10-12 of page 12, the outputs of decision block 2.3 are discussed. This description does not match the replacement Figure 2. (The examiner believes the figure is correct in this case and the specification should be updated.) Additionally, the outputs of decision block 2.2 are not labeled in the replacement Figure 2. Note also that the replacement drawings are incomplete as part of the Figure was cutoff when faxed to the office. Please ensure that the drawings are properly faxed in the response to this action.

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3. Applicant's arguments, see page 10, the second replacement drawings sheet, and the first paragraph of page 11, filed 10/8/2004, with respect to the objections to Figure 3 have been fully considered but they are not persuasive. Applicant has modified Figure 3 to overcome the previous objection. Examiner has reviewed the changes, and agrees that they address and correct the previous issues. However, the replacement Figure 3 introduced a new issue. The third line of the label of the transition from state "K" to state "O" does not indicate the value to which KRECOVER should be set. Based on the passage in lines 22-24 of page 11, it appears that this variable should be reset to 0 so that the ssthresh will be reduced by $\frac{1}{2}$ the next time k-recovery is entered (in the *next* "fast recovery"). Applicant's arguments, see page 10, the first replacement drawings sheet, and the first paragraph of page 11, filed 10/8/2004, with respect to the third bullet of the previous objections to the specification (for the description of Figure 2) have been fully considered but they are not persuasive. Applicant has modified Figure 2 to overcome the previous objection which essentially stated that the description of Figure 2 in the specification did not match the flow shown in Figure 2. Examiner has reviewed the changes, but the description still does not match the figure. For example, in lines 10-12 of page 12, the outputs of decision block 2.3 are discussed. This description does not match the replacement Figure 2. (The examiner believes the figure is correct in this case and the specification should be updated.) Additionally, the outputs of decision block 2.2 are not labeled in the replacement Figure 2.
4. Applicant's arguments, see section I on page 11, filed 10/8/2004, with respect to claim objections have been fully considered and are persuasive. The objections to claims 8 and 15 have been withdrawn.

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5. Applicant's arguments, see section II on page 11, filed 10/8/2004, with respect to the rejection of claims 9, 12-14, 16, and 19-21 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The previous rejection of claims 9, 12-14, 16, and 19-21 under 35 U.S.C. 112, second paragraph, has been withdrawn.

6. Applicant's arguments, see section III A on pages 12-13, filed 10/8/2004, with respect to the rejections of claims 8, 10-11, 15, and 17-18 under 35 U.S.C. 102(b) have been fully considered but they are not persuasive. The essence of applicant's argument is that Varshney fails to disclose the new limitations added to independent claims 8 and 15; applicant similarly argues that dependent claims 10-11 and 17-18 are also allowable on similar grounds. However, the new limitations are not supported in the specification and are thus rejected as new matter.

In the first paragraph of section III A, applicant states that Varshney fails to disclose, teach or suggest the newly amended subject matter in independent claims 8 and 15. While this appears to be the case, the claims are rejected under 35 U.S.C. 112, first paragraph, as new matter (see the rejection below for details). The new subject matter must be cancelled from the claims and thus the original rejection is maintained below.

In the second paragraph of section III A, applicant states his agreement that Varshney alone does not anticipate the limitations of claims 13 and 20. While examiner agrees with this statement, it is unclear how this relates to the rejection of claims 8, 10-11, 15, and 17-18 under 35 U.S.C. 102(b).

In the third paragraph of section III A, applicant summarizes Varshney to further explain why the newly amended limitations are not taught by Varshney. While this summary appears to

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be correct, the new limitations are new matter as discussed above and must be cancelled from the claims.

In the fourth paragraph of section III A, applicant provides description of the applicant's invention focusing on the three states mentioned in the specification. However, this subject matter is not contained in claims 8 and 15 as presently worded.

7. Applicant's arguments, see section III B on pages 14-15, filed 10/8/2004, with respect to the rejections of claims 9 and 16 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive. The essence of applicant's argument is that the combination of Varshney and Stevens fails to disclose the new limitations added to independent claims 8 and 15, and thus dependent claims 9 and 16 are allowable. However, the new limitations are not supported in the specification and are thus rejected as new matter.

In the first paragraph of section III B, applicant argues that Varshney and Stevens do not have a motivation for combination. Examiner disagrees with this assertion and maintains the position of the previous office action that one of ordinary skill in the art would combine Varshney and Stevens for the benefit of minimizing the changes to TCP.

In the second, third and fourth paragraphs of section III B, applicant argues that neither Varshney nor Stevens disclose the newly amended subject matter of the independent claims. As stated above, this subject matter is considered new matter and thus must be cancelled from the claims to overcome the rejection under 35 U.S.C. 112, first paragraph, below.

In the fifth and sixth paragraphs of section III B, applicant argues that Stevens does not contain a k-recovery phase or a three state system like that contained in the applicant's specification. However, these limitations are not specified in claims 9 and 16.

In the seventh, eighth and ninth paragraphs of section III B, applicant summarizes the argument that Varshney and Stevens fail to disclose the limitations of choosing among three different protocols. As mentioned above, this subject matter is not supported by the specification and must be cancelled from the claims.

8. Applicant's arguments, see section III C on pages 15-17, filed 10/8/2004, with respect to the rejections of claims 12-14 and 19-21 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive. The essence of applicant's argument is that the combination of Varshney and Parsa fails to disclose the new limitations added to independent claims 8 and 15, and thus dependent claims 12-14 and 19-21 are allowable. However, the new limitations are not supported in the specification and are thus rejected as new matter.

In the first paragraph of section III C, applicant argues that Varshney and Parsa do not have a motivation for combination. Examiner disagrees with this assertion and maintains the position of the previous office action that one of ordinary skill in the art would combine Varshney and Parsa for the benefit of quickly retransmitting wireless losses without a reduction in the data transmission rate.

In the second, and third paragraphs of section III C on page 16, applicant argues that neither Varshney nor Parsa disclose the newly amended subject matter of the independent claims. As stated above, this subject matter is considered new matter and thus must be cancelled from the claims to overcome the rejection under 35 U.S.C. 112, first paragraph, below.

In the fourth paragraph of section III C on page 16, applicant continues the argument regarding Parsa by summarizing the teachings of Parsa. Most of the argument centers on the new matter discussed above. However, the sentence starting with "Further, the slow-start

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threshold...” argues that Parsa does not disclose the limitation of claims 13 and 20 regarding the reduction of the slow-start threshold only on the first entry into the k-recovery phase during a packet loss cycle. Examiner agrees with this assertion and has thus withdrawn the rejection to claims 13 and 20. A similar argument is made in the fifth paragraph of section III C on pages 16-17.

In the sixth and seventh paragraphs of section III C on page 17, applicant summarizes Parsa and argues how it differs from the 3 phase method taught in the specification. Examiner agrees as stated above that the subject matter of claims 13 and 20 differ from Varshney combined with Parsa. However, the other subject matter discussed in these paragraphs is not found in the other claims.

In the eighth paragraph of section III C on page 17, applicant argues that Parsa assumes that nearly all losses are random and thus would not likely improve TCP like the applicant's invention. Examiner asserts that this statement is in reference to the performance results and is stating an assumption about the particular experiment being described and is not generally stating an assumption that was used in the design of the protocol described within the document.

In the final two paragraphs of section III C, applicant summarizes the above statements that the prior art of record does not teach or disclose the newly added subject matter. As stated before, this subject matter is considered new matter and thus must be cancelled from the claims to overcome the rejection under 35 U.S.C. 112, first paragraph, below.

Specification

9. The disclosure is objected to because of the following informalities:
- On page 12, the paragraph starting with “Figure 2 shows...” doesn’t match the flow in the figure. For example, in lines 10-12 of page 12, the outputs of decision block 2.3 are discussed. This description does not match the replacement Figure 2. (The examiner believes the figure is correct in this case and the specification should be updated.)
 - The last paragraph on page 12 and the first paragraph on page 13 do not match Figure 2. Many of the numbers labeling the various blocks in the figure do not match the numbers in the specification. Applicant is requested to review the figure and all related descriptions in the specification to correct these errors.
 - On page 13, line 13, “tat” should be changed to “that”.

Appropriate correction is required.

10. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (see page 18, line 8). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. Note that if this reference is removed from the application, any sections of the specification referring to this reference should also be updated accordingly (see page 11, line 7, for example).

Drawings

11. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “2.11” has been used to designate both the first “Estimate lookahead-loss”

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block and the second “Is fast recovery complete” block. Similarly, reference character “2.9” has been used to designate both the “Recv Ack” block and the second “Estimate lookahead-loss” block. The second “Timeout” block is not labeled.

12. The drawings are objected to because of the following minor informalities in Figure 2:

- The outputs of decision block 2.2 are not labeled. The output down to block 2.4 should be labeled “YES” and the output over to block 2.3 should be labeled “NO”.

13. The replacement Figure 3 is also objected to because the third line of the label of the transition from state “K” to state “O” does not indicate the value to which KRECOVER should be set. Based on the passage in lines 22-24 of page 11, it appears that this variable should be reset to 0 so that the ssthresh will be reduced by $\frac{1}{2}$ the next time k-recovery is entered (in the *next* “fast recovery”).

14. The new Figures 2 and 3 are also objected to because they were not completely received in the facsimile transmission. Specifically, notice that the bottom part of Figure 2 is missing as is the left part of Figure 3. Applicant is requested to resubmit these drawings such that the entire figure is received by the office for proper publication.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

15. Claim 23 is objected to because of the following informalities:

- “toss-window” in line 2 should be changed to “loss-window”.
- “mnax-dupsacks” in line 7 should be changed to “max-dupsacks”.

Appropriate correction is required.

16. Claim 25 is objected to because of the following informalities: the phrase “lookahead loss is greater than zero congestion is not detected” on line 4 should be changed to “lookahead loss is greater than zero and congestion is not detected”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

17. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

18. Claims **8-21 and 28** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Regarding claims **8 and 15**, the newly amended limitations (starting with “choosing a first transmission protocol” in claim 8) are not supported in the specification. Specifically, the specification does not describe a first, second and third threshold. There appears to be only one threshold – “K”. Assuming K is one of the thresholds, there is no mention of determining if “congestion” is below or above this threshold. Rather, the packet loss is compared to K and based on the result, the method determines that either congestion or random packet loss has occurred. Further, the specification does not describe a first transmission protocol, a second transmission protocol, and a third transmission protocol, but rather three phases of one transmission protocol (TCP). Finally, there is no support for “returning to a previous protocol when packet loss exceeds a predetermined limit”. In contrast, it appears that the method returns to the slow-start/congestion avoidance *phase* when packet loss *is recovered*.

Claims **9-14 and 16-21** are rejected as depending from claims 8 and 15 and thus containing the subject matter not supported in the specification as described above.

Regarding claims **14, 21, and 28**, the limitations of describe the additional phase of “Post Recovery” and indicate that in this phase: (a) a sender continues in congestion avoidance or slow-start, (b) the sender provides an accurate estimation of pipe size, and (c) this accurate pipe size is used for controlling window inflation and deflation. Examiner acknowledges that this claim is very similarly worded to the passages starting at line 4 of page 5, line 1 of page 7 and line 1 of page 9. However, based on the above cited passages from the specification, examiner believes that the 3 limitations are separate limitations and not all part of a “Post Recovery” phase as implied in the claims. That is, the more accurate pipe size estimation and the use of this

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estimation do not appear to be directly related to the sender transitioning back to the congestion avoidance or slow start phase.

Further, the “Post Recovery” described in the above cited passages is not a separate phase, but rather describes the transition from “fast recovery” (that is either of the “halt growth” or “k-recovery” phases (“H” and “K” in figure 3)) back to the “slow start/congestion avoidance” phase when the errors have been recovered. Therefore, the presentation of this subject matter as an additional phase is not supported in the specification. In addition, since the more accurate pipe size estimation and the use of this estimation in controlling window inflation/deflation are not further expanded upon in the detailed description, examiner recommends canceling these claims.

19. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **22-28** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim **22** is rejected because the phrase “when a first level of packet recovery occurs” on lines 13-14 is unclear. It is not clear what is meant by “first level”. Examiner recommends rewording this phrase to something like “when the first level of packet loss has been recovered”.

Claim **22** is rejected because the phrase “and said congestion avoidance phase is restarted” in line 17 is unclear. It is not clear what is meant by “restarting” the congestion avoidance phase. Examiner recommends rewording this phrase to something like “and returning to said congestion avoidance phase when the second level of packet loss has been recovered”.

Claim 28 recites the limitation "the sender" in line 1 and "the recovery phase" in line 2.

There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

21. Claims 8, 10-11, 15, and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by the article "Selective Slow Start: A Simple Algorithm For Improving TCP Performance in Wireless ATM Environment" by Varshney.

Regarding claims 8 and 15, Varshney discloses a system for improving TCP throughput over lossy communication links without affecting performance over non-lossy links comprising (see the title and abstract): means for determining lookahead-loss which is the number of lost packets in a given loss-window (see the "COMPUTE N_LOSS" procedure in Figure 3), means for using said loss -window and said lookahead loss to detect congestion in said communication links (see lines 3-8 of the fourth paragraph of the second column of page 466 the second full paragraph of the first column page 467 which describes how the computation of N_LOSS helps detect whether the packet loss is due to congestion), and means for controlling transmission under congestion conditions as well as under normal conditions (see the last 7 lines of the second column on page 466 and the second full paragraph of the first column page 467). The method

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and computer program of claims 8 and 15 contain similar limitations and are rejected as indicated above.

Regarding claims **10 and 17**, Varshney discloses the limitation that said means for detecting congestion is a mechanism for identifying when the number of packets lost in a loss-window is greater than an appropriately selected preset number (see lines 3-5 of the second full paragraph of the first column of page 467).

Regarding claims **11 and 18**, Varshney discloses the limitation that means for controlling transmission is a TCP k-SACK protocol which is a modification of the fast retransmit algorithm of the basic congestion control algorithm of TCP to include: entering a 'halt growth' phase whenever lookahead loss is greater than zero and congestion is not detected, entering a 'k-recovery phase' whenever the congestion is detected (see lines 16-20 of column 2 of page 465).

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

24. Claims **9 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over the article "Selective Slow Start: A Simple Algorithm For Improving TCP Performance in Wireless ATM Environment" by Varshney in view of RFC 2001 by Stevens.

Varshney discloses all the limitations of parent claims 8 and 15 as specified in the rejection above. Varshney does not disclose expressly the details of how a loss is computed as specified in claims 9 and 16.

Stevens discloses in the second paragraph of section 3, that if 3 or more duplicate ACKs are received in a row, this indicates a loss. This discloses the limitation that the lookahead-loss is incremented when the sender has received at least max-dupacks (an appropriately selected number, typically three) duplicate cumulative acknowledgements. The limitation that the lookahead-loss is incremented if the sender has neither received acknowledgement nor selective acknowledgement for said packets, while it has received selective acknowledgements for at least max-dupacks (an appropriately selected number, typically three) packets with higher sequence numbers is obvious in view of this teaching of Stevens as applied to selective ACKs as the same principle is involved in distinguishing between losses due to congestion and losses due to other reasons.

Varshney and Stevens are analogous art because they are from same field of endeavor of TCP congestion control. At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Varshney to use the duplicate acknowledgements as taught by Stevens to compute N_LOSS. The motivation for doing so would have been to implement the

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selective slow start of Varshney while modifying TCP as little as possible. Therefore, it would have been obvious to combine Stevens with Varshney for the benefit of minimizing the changes to TCP to obtain the invention as specified in claims 9 and 16.

25. Claims 12, 14, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article "Selective Slow Start: A Simple Algorithm For Improving TCP Performance in Wireless ATM Environment" by Varshney in view of the article "Differentiating Congestion vs. Random Loss: A Method for Improving TCP Performance over Wireless Links" by Parsa et al.

As explained in the rejection under 35 U.S.C. 102(b) above, Varshney discloses all the limitations of the parent claims 11 and 18. Varshney does not disclose expressly the limitations recited in claims 12, 14, 19, and 21.

Parsa discloses the limitation of claims 12 and 19 that said 'halt growth phase', the sender freezes the congestion window and maintains it in that state in section III on page 91. The sentence starting with "However if a loss is not preceded..." discloses this limitation. Parsa also discloses in the same section the limitation of claims 13 and 20 that said entry into 'k-recovery phase' reduces the congestion window to half its original size, while the slow-start threshold is reduced to half only on the first occasion of entry into the k-recovery phase during a packet loss recovery cycle. In the 2 sentences starting with "Finally, if a loss occurs in state count = 2..." discloses this limitation. Parsa and Varshney are analogous art because they are from the same field of endeavor of congestion control in TCP. At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Varshney to freeze the congestion window when congestion is not detected and reduce the congestion window in half if congestion is detected as taught by Parsa. The motivation for doing so would have been to quickly

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retransmit wireless losses without a reduction in the data transmission rate as suggested by Parsa a the end of section III on page 91. Therefore, it would have been obvious to combine Parsa with Varshney for the benefit of quickly retransmitting wireless losses without a reduction in the data transmission rate to obtain the invention as specified in claims 12, 14, 19, and 21.

Allowable Subject Matter

26. Claims **13 and 20** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

27. Claims **22-27** would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patents 6,765,889, 6,754,200, 6,741,555, 6,646,987, 6,744,730, and U.S. Patent Application Publications 2002/0097722, 2003/0103452, and 2002/0150048 discuss various solutions to the problem the applicants are solving of distinguishing between congestion and random data loss when using TCP over a lossy link.

29. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 571-272-3169. The examiner can normally be reached on Monday and Thursday from 6:30-5:00 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RCS 2-17-05
Robert C. Scheibel
Examiner
Art Unit 2666

Seema S. Rao
SEEMA S. RAO 2/22/05
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800